Aileen DiGiovanni July 2014 Course: Water, Energy and Waste: Integrating Themes of Sustainability

Instructor: Shakira Provasoli

Pre-K Science Unit: The Water Cycle

Overview: Students learn about the water cycle as they test their hypotheses and observe an experiment.

Duration: 3 Class Periods

Objectives:

Students will observe the stages in the water cycle: evaporation, condensation and precipitation.

Students will hypothesize the source of rain.

Students will recall where we find forms of water on earth.

NYS Learning Standards addressed:

Scientific Thinking:

1. Asks questions and makes predictions based on observations and manipulation of things and events in the environment.

c) Makes observations and describes changes in natural events in the environment.

2. Tests predictions through exploration and experimentation.

3. Generates explanations and communicates conclusions regarding experiments and explorations.

Earth and Space:

4. Observes and describes characteristics of earth and space.

b) Investigates and identifies physical properties and characteristics of water (solid, liquid and gas).

Materials:

a hot plate with a shallow pan, a small saucepan, 24 ice cubes, drawing paper, crayons and pencils, the book *Come on Rain*, by Karen Hesse, chart of *The Little Water Vapor Song*:

"The Little Water Vapor" song (to the tune of The Eensy Weensy Spider)

The little water vapor evaporated high, (raise hands)Into a cloud, it condensed by and by. (pat hands, making a fluffy cloud)When the cloud was full, it precipitated rain, (wiggle fingers, cascading down)Down fell the water, to start the cycle again! (make circular motion with hand)

### Procedure:

**Day 1**

During Circle Time, read the story[***Come On, Rain***](http://shop.scholastic.com/webapp/wcs/stores/servlet/ProductDisplay?productId=13709&langId=-1&storeId=10001&catalogId=10002&FullBreadCrumb=cookie). Then ask students to draw and write about why it rains and where rain originates.

Gather students again on the rug to share their ideas.

**Day 2**

Ask students to recall how water changes. Create a water idea web on chart paper. At the top, write, "The Water Cycle." In the center, write the word "water," and circle it. Lines going out from the circle should have the words "evaporation, condensation, and precipitation." Refer to the song and review what each word means.

Show students the electric frying pan and explain that it will get hot when you plug it in.Keeping students at a safe distance, place a dozen ice cubes in the skillet and ask students where they see water in this form (snow, ice cycles, icebergs, glaciers, frozen ponds, etc). Chart answers under "solid."

Turn on the skillet. Ask students to notice and describe what's happening to the ice. What form of water is the solid changing to when it melts? Ask students to recall where we find water in a liquid form (streams, rivers, ponds, oceans, lakes, pools, etc.) Chart these answers under "liquid."

As the liquid heats up, changing to steam/ vapor and rising, ask students what they notice. Ask them if they recall what the water vapor is called and where else they see gas ( steam from cup of hot liquid, a whistling kettle, fog, etc.). Chart these answers under "gas." Tell them that this is evaporation. Now fill the saucepan with ice and hold it over the frying pan. Tell students that the pan represents a cloud. As the water in the air rises, it condenses to make clouds.

Allow students to watch for a little longer and describe what they notice. Condensation is occurring and water vapor changes to water droplets or liquid. Explain that when the liquid is too heavy, it falls, just like in a cloud. We call that precipitation. Ask the students to tell you where they see precipitation: snow, rain, snowflakes, hail, etc.

Use the song to review important new vocabulary.

**Day 3**

Remind students of the rain experiment you did together. Sing "The Little Water Vapor Song" again. Ask students to draw and write about why it rains and where it comes from.

Gather students together to share their stories. Ask them to compare their hypothesis with their second illustration.

### Differentiation:

### Encourage students who are ready to use letters and words. Label pictures for those students who need it.

### Extension:

Each student can further demonstrate the water cycle by building a terrarium. Ask each student to bring in a plastic bottle with a cap. Put about an inch of soil in the bottom of the plastic container and plant a small plant. Give it a good soaking of water. Water will evaporate up and be trapped in the bottle and "rain" down.

### Family Involvement:

Ask students (along with families) to be a condensation detectives and record where condensation occurs at home (on cold glasses of liquid, on leaves, or the car windows in the morning, etc.)

### Assessment/Evaluation: pre and post writing samples

Did the students understand elements of the water cycle?

Did the students participate in the song?

Were the students able to recall the forms of water?

Subjects:

Discovery and Learning, Charts and Graphs, Cause and Effect, Listening and Speaking, Expository Writing, Early Science, Early Writing, Real-World Science, Science Experiments and Projects, Water Cycle, Observation, Songs and Rhymes, Music

Skills:

Cause and Effect, Charts and Graphs, Diagrams, Science, Listening and Speaking, Expository Writing